HUMAN RESOURCES FOR TREATING NEW CANCER CASES IN NIGERIA

Executive Summary

The purpose of this report is to describe the human resources needed in Nigeria to treat new cancer patients.

The population of Nigeria is approximately 15.12 million (7.56 million men and 7.55 million women) and the estimated number of new cancer cases in Nigeria for the year 2008, based on Globocan data for Nigeria as a whole (http://globocan.iarc.fr/) was 101797 (40118 in men and 61679 in women) (Table A). The five most common cancers in Nigeria are (1) breast (2) gynecological (cervix uteri, corpus uteri and ovary), (3) urological (bladder, kidney, prostate and testis), (4) hematological malignancies (Hodgkin lymphoma, non-Hodgkin lymphoma, multiple myeloma, leukemia), and (5) liver.

Table A: The ten most frequently occurring cancers in Nigeria for men and women based on 2008 Globocan data (http://globocan.iarc.fr/).

Cancer	Both	Rank	Men	Rank	Women	Rank
All cancers excl. non-melanoma skin cancer	101797		40118		61679	
Breast	18935	1			18935	1
Gynecological	17082	2			17082	2
Urological	10245	3	9361	1	884	8
Hematological Malignancies	9125	4	5417	3	3708	3
Liver	9110	5	6301	2	2809	5
Head and Neck	7051	6	4209	4	2842	4
Colorectal	5151	7	2970	5	2181	6
Kaposi sarcoma	2178	8	1231	6	947	7
Stomach	1819	9	1230	7	589	9
Lung	1052	10	655	8	397	13
Melanoma of skin	1034	11	570	9	464	11
Esophagus	1020	12	563	10	457	12
Pancreas	924	13	437	12	487	10

Newly diagnosed cancer patients need pathology, surgery, chemotherapy and/or radiation therapy. The number of oncologists needed is based, therefore, on the number of patients requiring pathology, surgery, chemotherapy and radiation therapy (Table B). This number is estimated from the percentage of patients requiring surgery, chemotherapy and/or radiation therapy for the top ten cancers in both men and women. For developing countries the International Atomic Energy Agency (IAEA) recommends training Radiation/Clinical Oncologists who can prescribe both radiation and chemotherapy for the common solid cancers, instead of separate medical and radiation oncologists. Hematological malignancies are treated primarily by hematologist-oncologists. The number of specialists needed is based upon the number of cancer patients but each city, in order to ensure coverage if one person leaves or goes on vacation, must have at least 2 surgical oncologists, 2 radiation/clinical oncologists, 2 hematologist oncologists, etc.

Table B: Number of Oncologists needed for Nigeria's two most populous federal states based on 2011 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Hematologist Oncologists	Surgical Oncologists	Radiation / Clinical Oncologists	Urologic Oncologists	Gynecologic Oncologist	Pathologists
Kano	7445	2	7	38	2	3	15
Lagos	7182	2	7	36	2	3	15

In addition to Oncologists, support staff such as Pharmacists, Pharmacy Technicians, Oncology Nurses and Palliative Care specialists is also needed. Many cancer patients require hospitalization for diagnosis, treatment and/or complications, therefore an adequate number of oncology beds will be needed. The number of oncology nurses, onco-pharmacists and pharmacy technicians needed is based upon the number of beds occupied daily by cancer patients while the number of palliative care specialists is based on the number of new cancer cases per year (Table C). The oncology nursing staff for each 24-bed oncology unit (operating 24 hours a day, 7 days a week) comprises of one head nurse and a nurse specialist as well as 13 nurses working 8 hour shifts, 5 days per week.

Table C: Number of Oncology Units, Nursing and Pharmacy Staff needed for Nigeria's two most populous federal states based on 2011 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Oncology beds/day	24 bed oncology wards	Onco-Pharmacists	Pharmacy Technicians	Palliative Care Specialists	Oncology Nurses
Kano	**7445**	112	5	20	30	15	75
Lagos	**7182**	108	5	20	30	15	75

Since many cancer patients require radiotherapy, appropriately equipped facilities will be needed along with radiation oncology staff (Tables D and E). Radiation oncology staff includes Radiation Therapy Technicians, Medical Physicists, Linac Engineers and Radiotherapy Nurses in addition to Radiation/Clinical oncologists. The minimum radiation therapy equipment requirements are at least one of each: Linac, Brachytherapy unit, CT Simulator, Treatment Planning Computer and Dosimetry/Quality Assurance package.

Table D: Radiation Therapy Staff needed for Nigeria's two most populous federal states based on 2011 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	Cancer incidence	Radiation / Clinical Oncologists	Radiation Technicians	Medical Physicists	Linac Engineers	Radiation Oncology Nurses
Kano	**7445**	38	47	16	4	16
Lagos	**7182**	36	45	15	4	15

Table E: Radiation Therapy Equipment needed for Nigeria's two most populous federal states based on 2011 population estimates (http://citypopulation.de/) and 2008 Globocan data for new cancer cases (http://globocan.iarc.fr/).

	New Cancer Cases	Linacs/ Co 60 Megavolt Units	Brachytherapy units	CT simulators	Treatment planning computers	Dosimetry/QA package
Kano	**7445**	8	4	4	4	4
Lagos	**7182**	8	4	4	4	4

NOTE: Guidelines from the IAEA of the United Nations were used to calculate the radiation therapy equipment and staff needed in the setting of a developing country. Guidelines from the Oncology Nursing Society were used to calculate the number of nurses needed. Several other specialty societies were also requested to provide guidelines but in most cases there were none, therefore colleagues active in those fields were consulted for estimating the number of staff needed.